WESTERN EUROPE

SYSTEMS OPERATIONS USER ISSUES

1990 - 1995

INPUT

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Abstract

This report evaluates the buying process within the Western European systems operations market. It discusses the driving forces which lead users to adopt systems operations, and identifies the major market segments within the systems operations market. For each market segment, the user's motivations for adopting systems operations and their vendor selection criteria are identified. The positioning of professional services vendors, management consultancies, and major equipment vendors is evaluated in the light of these criteria, and the most appropriate market segment for each group to target is identified. Levels of user satisfaction and possible vendor switching criteria are also discussed.

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Table of Contents

I Introduction 1

A. Objectives 1
B. Scope 1
C. Methodology 2
D. Report Structure 2

II Executive Overview 3

A. Users Reluctant to Consider New Market Entrants 3
B. Market Segmentation 4
C. Vendor Selection Criteria 7
D. Switching Criteria 9
E. Vendor Positioning 12

III The Buying Process 15

A. Pressures for Adopting Systems Operations 15
B. Types of Systems Operations Service 19
1. Market Segmentation 19
2. Operations Management 21
3. Transition Management 22
4. Complete Systems Operations 23
5. Public Sector Issues 24
C. Purchasing Criteria 25
1. Overall Criteria 25
2. Operations Management and Transition Management 27
3. Complete Systems Operations 29
D. Perceived Suitability of Vendors 30
1. Overall Suitability by Vendor Type 30
2. Perceptions of Management Consultancies 31
3. Perceptions of Major Equipment Vendors 32

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Table of Contents (Continued)

E. User Satisfaction 33
1. Overall Level of Satisfaction 33
2. Causes of Satisfaction 34
3. Causes of Dissatisfaction 35
4. Switching Criteria 36
5. Inhibitors to Systems Operations 38

IV Implications for Vendors 41

A. Introduction 41
B. Operations Management 42
C. Transition Management 43
D. Complete System Operations 44

Appendixes

A. Definition of Terms 45
A. Overall Definitions and Analytical Framework 45
B. Industry Structure and Delivery Modes 48

B. Related INPUT Reports 53

C. User Questionnaire—Systems Operations 55

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Exhibits

II

-1 Western European Systems Operations—Market Segmentation 4
-2 Western European Systems Operations, Operations Management—Reasons for Use 5
-3 Western European Systems Operations, Transition Management—Reasons for Use 6
-4 Western European Systems Operations, Complete Systems Operations—Reasons for Use 7
-5 Western European Systems Operations—Vendor Selection Criteria: Operations Management and Transition Management 8
-6 Western European Systems Operations—Vendor Selection Criteria: Complete Systems Operations 9
-7 Western European Systems Operations—User Switching Criteria 10
-8 Western European Systems Operations—Causes of User Satisfaction/Dissatisfaction 11
-9 Western European Systems Operations—Positioning of Vendors 12

III

-1 Western European Systems Operations—User Pressures Leading to Use of Systems Operations 15
-2 Western European Systems Operations—Principal Reasons for Adoption 17
-3 Western European Systems Operations—Types of Service 20
-4 Western European Systems Operations—Principal Reasons for Adopting Operations Management 21
-5 Western European Systems Operations—Principal Reasons for Adopting Transition Management 22
-6 Western European Systems Operations—Principal Reasons for Adopting Complete Systems Operations 23
-7 Western European Systems Operations—Reasons for Adoption: Differences Between Public and Private Sectors 24

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Exhibits (Continued)

-8	Western European Systems Operations—Major Reasons for Selection of Vendors	25
-9	Western European Systems Operations—Major Factors in Choice of Vendor	27
-10	Western European Systems Operations—Major Factors in Vendor Choice—Operations Management	28
-11	Western European Systems Operations—Major Factors in Vendor Choice—Transition Management	28
-12	Western European Systems Operations—Major Factors in Vendor Choice—Complete Systems Operations	29
-13	Western European Systems Operations—Overall Suitability of Vendor Types	30
-14	Western European Systems Operations—Perceived Suitability by Market Segment	31
-15	Western European Systems Operations—Doubts of Suitability of Management Consultancies	32
-16	Western European Systems Operations—Doubts of Suitability of Major Equipment Vendors	33
-17	Western European Systems Operations—Level of Satisfaction with Service Received	34
-18	Western European Systems Operations—Causes of Satisfaction	35
-19	Western European Systems Operations—Major Reasons for Dissatisfaction	35
-20	Western European Systems Operations—Length of Contracts	36
-21	Western European Systems Operations—User Switching Criteria at End of Contract	37
-22	Western European Systems Operations—Inhibitors to Systems Operations	38

IV

-1	Western European Systems Operations—Operations Management—Positioning of Vendors	42
-2	Western European Systems Operations—Transition Management—Positioning of Vendors	43
-3	Western European Systems Operations—Complete Systems Operations—Positioning of Vendors	44

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I

Introduction

1 Introduction

A Objectives

This report looks at systems operations from the user perspective. Its objectives are:

- To identify the various types of systems operations services in use.
- To identify the circumstances in which users adopt systems operations, and their reasons for doing so.
- To identify the criteria by which users select vendors and to clarify their perceptions of the various categories of vendor.
- To measure the satisfaction levels of users and identify any criteria which would induce them to change supplier.

B Scope

This report analyses the buying process for users adopting systems operations within Western Europe.

Systems operations involves the operation and management of all or a significant part of the user's information systems functions under a long-term contract. These services can be provided in either of two distinct submodes:

- *Professional Services* - The vendor provides personnel to operate client-supplied equipment. Prior to 1990, this was a submode of the Professional Services delivery mode.
- *Processing Services* - The vendor provides personnel, equipment and (optionally) facilities. Prior to 1990, this was a submode of the Processing Services delivery mode.

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Systems operations vendors now provide a wide variety of services in support of existing information systems. The vendor can plan, control, provide, operate, maintain and manage any or all components of the user's information systems (equipment, networks, systems and/or application software), either at the client's site or the vendor's site. Systems operations can also be referred to as resource management or facilities management.

C
Methodology

The research that contributes to this study was derived from the following sources:

- Twelve in-depth interviews conducted either face-to-face or by telephone with leading users of systems operations within Western Europe.
- The use of INPUT's library facilities which include press releases, trade press, newspaper and magazine articles.
- INPUT's continuous annual analysis of the computer software and services market which includes an extensive series of interviews with both vendors and users in Europe.

Additionally INPUT's extensive library and database of information relating to the software and services industry was utilised.

D
Report Structure

Chapter I provides details of the objectives and scope of the research, together with the methodology used.

Chapter II is the Executive Overview of the entire report. It summarises the principal findings of the research with an emphasis on vendor selection criteria and vendor positioning for each of the market segments identified.

Chapter III looks at the buying process in the systems operations market in more detail. In particular, it discusses the user pressures which lead to the adoption of systems operations, and the basic market segmentation. For each market segment, the users' motivations for adopting systems operations and their vendor selection criteria are identified. The positioning of professional services vendors, management consultancies, and major equipment vendors in the market place is evaluated in the light of these criteria. Levels of user satisfaction and vendor switching criteria are also discussed.

Chapter IV considers the implications of these findings for vendors and identifies the most appropriate segments of the systems operations market for each category of vendor to target.

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II

Executive Overview

II

Executive Overview

A

Users Reluctant to Consider New Market Entrants

The systems operations market in Western Europe is starting to mature as indicated by the fact that users are becoming increasingly reluctant to appoint vendors who lack significant experience in the market.

Even so, the number of opportunities for systems operations vendors continues to remain small. Systems operations is typically only considered as an option by users once the user organisation faces severe external pressures. Those pressures usually manifest themselves internally in the form of severe cost pressure or the need to refocus the business and consequently realign the supporting information systems. Company demergers and decentralisations remain major driving forces for systems operations, and are frequently accompanied by system downsizing and redevelopment.

The systems operations market can be divided into three segments, each displaying its own unique combination of reasons for purchase and vendor selection criteria. These segments consist of:

- Operations management,
- Transition management,
- Complete systems operations.

In operations management, the user outsources the operation of the computer equipment, but retains full control of applications maintenance and development. The equipment, most commonly mainframe-based, is typically transferred to the vendor's site. At the present time, professional services vendors are best positioned to target this segment. Purchasers of operations management tend to judge vendors on a combination of cost, technological capability, and market presence.

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Transition management projects tend to be of a more short-term nature. The user is redeveloping the organisation's information systems to realign them with business needs and requires a vendor to manage the existing systems—both operations and maintenance—while redevelopment is underway. Users of transition management show less concern for their vendor's current market presence. Accordingly, this segment would probably be the most appropriate one for the major equipment vendors to target initially should they decide to enter the systems operations market in Europe.

In complete systems operations, the user outsources both the management of existing information systems and the development of new ones to the same vendor. Users perceive that the management consultancies are best positioned to service this market segment, by virtue of the perceived superiority of their business consultancy skills.

B

Market Segmentation

Exhibit II-1 indicates the three main segments of the systems operations market in Western Europe.

EXHIBIT II-1

Western European Systems Operations—Market Segmentation

- Operations management
- Transition management
- Complete systems operations
  Western European systems operations

The operations management segment consists of situations where the user's computer operations activities are outsourced. Most operations management contracts involve the operation of mainframe-based systems, though some instances of outsourcing of minicomputer-based systems do exist. Contracts are typically negotiated for five years at a time. The information systems department remains a major buying influence for system operations, and retains control of application maintenance and development.

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Transition management involves the management of the user's existing systems, while new systems are developed. Both the operation and maintenance of the existing systems are typically subcontracted. Contracts tend to be shorter than those for operations management and are typically around two years in length. As in the case of operations management, the equipment tends to be transferred to the vendor's premises.

Complete systems operations involves both the operation and maintenance of the user's existing information systems together with the redevelopment of any new systems required. In these cases, the user information systems department no longer undertakes the specification and development of information systems within the user organisation.

Exhibit II-2 identifies the major reasons for users' adoption of operations management. One of the major reasons is the desire to control and, to a lesser extent, reduce costs. It can be difficult for users to control the costs of computer operations, which are increasingly being seen as non-core activities. Factors which make cost control complicated include:

EXHIBIT II-2

Western European Systems Operations
Operations Management
Reasons for Use

- IS cost control
- Technology complexity

- Vendor operating system modifications and upgrades;
- Equipment upgrades required to maintain adequate service levels;
- Changes in equipment vendors' marketing and pricing policies;
- Equipment obsolescence;
- Equipment downtime.

As well as the direct costs of the above, all of these can lead to increased levels of staff overtime.

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In addition, the complexity of the equipment can make day-to-day management difficult, and lead to the need to employ expensive experts in areas such as systems software and performance monitoring.

However, if computer operations are outsourced, then the user benefits from fixed, and often reduced, costs and is freed from all the day-to-day problems associated with computer operations. Information systems management can now turn its attention to its information systems strategies and maintaining systems in line with business requirements. Overall the focus within operations management is on cost management.

Exhibit II-3 lists the principal reasons for users' adoption of transition management, the prime motivation for which is the realignment of informations systems with the business they support. As such, transition management projects are comparatively short and have the purpose of freeing both staff and space to concentrate on the new development activities.

EXHIBIT II-3

Western European Systems Operations Transition Management—Reasons for Use

- Relating IS to business needs
- Freeing key personnel from maintenance activities

Accordingly, while cost may remain an important factor in the choice of vendor, it is not one of the principal driving forces for the use of systems operations for transition management.

Exhibit II-4 lists the principal reasons for the adoption of complete systems operations. In these instances, the in-house information systems department has lost most of its responsibility for the development of new systems and probably much of its influence in directing information systems strategies, though it is likely that the real malaise within the organisation is much more fundamental than this.

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EXHIBIT II-4

Western European Systems Operations
Complete Systems Operations
Reasons for Use

- Relating IS to business needs
- IS cost control

Organisations adopting complete systems operations combine both the need to realign information systems with business needs and a strong need to reduce costs. This combination is typically only found in organisations that are having to rethink their entire business strategy as a result of severe external pressures while, at the same time, facing significant internal pressure to reduce costs.

This type of situation can often be found within public sector organisations in the United Kingdom.

C

Vendor Selection Criteria

Exhibit II-5 lists the vendor selection criteria of users for the operations management and transition management segments. While the need for easier planning of information technology costs, rather than cost reduction, is the primary motivation for adopting operations management, when it comes to vendor selection, cost is particularly important.

Since operations management is typically a long-term undertaking, vendor stability is also important. Vendor stability seems to be measured by a combination of vendor size, user familiarity with the vendor, and the extent of the vendor's presence in the systems operations market. The latter criterion is one of the reasons why the operations management segment is the market segment which is least receptive to new entrants.

Hence, although they have many of the necessary skills, it is not recommended that the major equipment vendor target operations management in the short-term.

While the motivations of users adopting systems operations in the operations management and transition management segments are quite different, their principal vendor selection criteria show a great deal of similarity, as shown in Exhibit II-5.

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EXHIBIT II-5

Western European Systems Operations Vendor Selection Criteria: Operations Management and Transition Management

Criterion	Operations Management	Transition Management
Cost	X	X
Technological Capability	X	X
Vendor Stability	X	
Location		X

It should be noted that application maintenance capability was not perceived by users to be an important criterion in choosing a transition management vendor. However, it is not clear whether this was because application maintenance was perceived to be a minor part of the service, or whether it is simply difficult for users to differentiate between vendors on this basis.

The main differences between vendor selection criteria for transition management and operations management are as follows:

- Market presence is a less important vendor attribute for transition management due to the comparatively short-term, one-off nature of the arrangement.
- Cost is also a less important consideration in transition management.

The physical location of the equipment was also perceived to be important by transition management clients, reflecting the need to clear space for new systems. There may also be the psychological need to remove the day-to-day problems associated with the "old systems" from the premises.

As shown in Exhibit II-6, the vendor selection criteria for complete systems operations bear little resemblance to those seen previously for operations management and transition management.

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EXHIBIT II-6

Western European Systems Operations Vendor Selection Criteria: Complete Systems Operations

- Business consulting skills
- Development capability
- Independence from equipment vendors

Although cost is a primary motivation in the decision to adopt complete system operations, it does not appear in the list of principal vendor selection criteria. In the case of complete systems operations, user concerns with cost and equipment operating skills are replaced by the need for the vendor to understand the client's business and translate this understanding into effective information systems.

For complete systems operations, independence from equipment vendors was perceived as important by users. This is because users fear being locked into a particular supplier and a lack of impartiality and objectivity on the part of the vendor in developing future information systems strategies.

D

Switching Criteria

The actions taken by users on expiry of their initial systems operations contracts, and the basis on which they may switch to an alternative vendor, vary from one market segment to another. This situation is summarised in Exhibit II-7.

For transition management, there will typically be an option for the user to roll-on the contract, possibly by six months at a time, to insure the user against delays in the development of the new systems. However, transition management contracts are typically short-term and will terminate on implementation of the new systems. Hence, there are typically no major vendor reviews and little opportunity for alternative vendors to take over running of the systems.

Operations management usage may continue indefinitely. This means that users will tend to adopt a formal review towards the end of the initial systems operations contract. By this time, users consider that they will have extensive experience of systems operations and will be in a position

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EXHIBIT II-7

Western European Systems Operations User Switching Criteria

Market Segment	Mechanism/Criteria
Operations Management	Formal review cost/service levels
Transition Management	Option to roll-on
Complete Systems Operations	Vendor relationship

to evaluate tenders on the basis of detailed service level requirements. Accordingly, users are likely to go out to tender if only to test the market and ensure that the service levels from their existing supplier are maintained or improved. However, it is probable that the existing supplier will be in a strong position in these negotiations provided service level agreements have been met and no serious operating problems have occurred.

However, because the combination of service level agreements and cost makes value for money comparatively easy to measure in operation management tenders, there is less scope for subjectivity and more chance of a vendor offering improved cost/service levels winning the contract.

On the other hand, it is much more difficult to achieve objective measures of vendor performance for complete systems operations contracts. Here much depends on the relationship between user and vendor. The extent to which the user believes that the vendor has achieved an understanding of his business and implemented effective information systems is obviously crucial but can be a subjective judgment.

In some cases, it is likely that usage of complete systems operations will cease as decentralised information systems are implemented, these being run by the end users themselves.

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Exhibit II-8 lists the major causes of user satisfaction and dissatisfaction with systems operations.

EXHIBIT II-8

Western European Systems Operations Causes of User Satisfaction/Dissatisfaction

Likes	Dislikes
Improvement in service levels	Minor operational problems
Breadth of vendor expertise	Poor communication

The survey indicated that users are very satisfied with the levels of service they have received from systems operations vendors. Users typically reported a seamless transition to systems operations, and an improvement in service levels once the service was established. The transfer of operations from the user to the vendor site seems to be a major strength of many vendors. Users were also pleased with the breadth of expertise available to vendors which enabled most problems which occurred to be satisfactorily resolved.

However, minor operations problems were also widespread. Typical problems, though these were frequently regarded as teething problems rather than serious problems, include:

- A lack of perceived consistency in operating procedures.
- Production of the wrong reports.
- Delays in the transportation of reports.

Instances of poor communication in fault channelling and with remote operators were also reported.

Overall users recognized that it could take time for the service to settle down and for staff to become accustomed to new working relationships.

However, it was clear that the initial negotiations for systems operations need to go into considerable detail to protect both users and vendors. Detailed service level agreements can help to avoid subsequent disagreements and ensure that both parties understand the commitments being

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made. The only serious cases of user dissatisfaction reported to INPUT in the course of this study were as follows: In one instance, the equipment was perceived as being undersized by the user. In another instance, a high level of vendor staff turnover disrupted service levels. Clear service level agreements and operating procedures would assist in resolving both these problems.

E

Vendor Positioning

Exhibit II-9 summarises the current positioning of vendors by market segment.

EXHIBIT II-9

Western European Systems Operations Positioning of Vendors

Market Segment \ Vendor Type	Professional Services Vendors	Management Consultancies	Major Equipment Vendors
Operations Management	Very Good	Medium	Medium
Transition Management	Very Good	Medium	Good
Complete Systems Operations	Good	Very Good	Medium

The professional services vendors already operating in the systems operations market are well-positioned in both the operations management and transition management segments.

The management consultancies are poorly positioned in these segments due to their perceived high cost and the threat they pose—via selling of complementary services—to the user information systems department. However, the management consultancies are well positioned in the complete systems operations segment as a result of their perceived superior business consulting skills.

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The major equipment vendors are not well-positioned to target complete systems operations because of user fears of being locked in, and the need for vendor independence in specifying information system strategies. However, they are well-positioned to target the transition management market where they have the necessary skills and where users are less concerned with existing market presence. Once the major equipment vendors have established themselves in the transition management segment, their market presence there would remove the major hurdle to their targeting the operations management market.

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III

The Buying Process

III

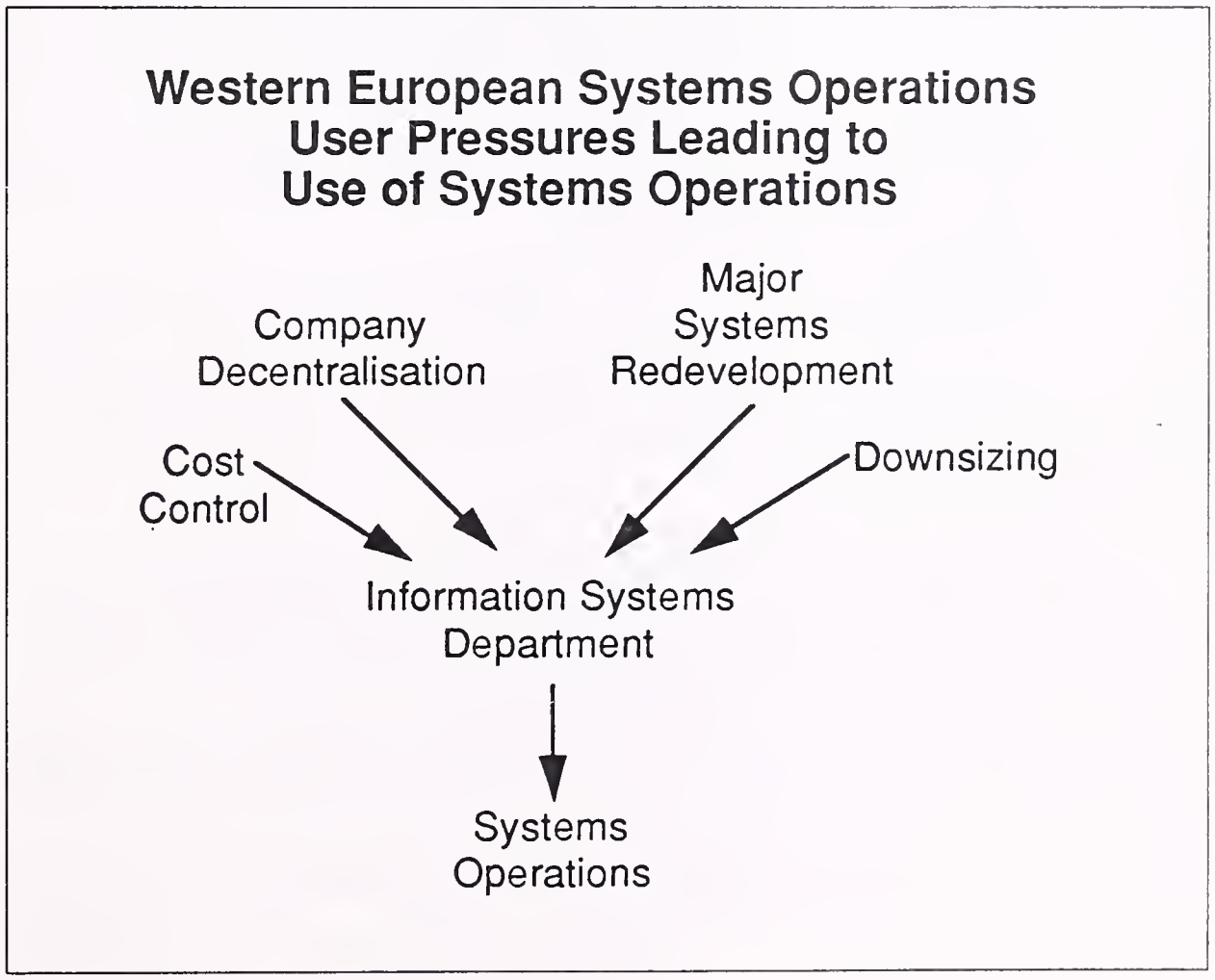
The Buying Process

A

Pressures for Adopting Systems Operations

Exhibit III-1 shows the typical pressures which lead to the adoption of systems operations. Systems operations is still infrequently adopted by users as a routine measure. It typically requires a major external driving force, such as severe competitive pressure, leading to a major change of direction or refocusing within the user organisation, as the catalyst for change.

EXHIBIT III-1



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In Western Europe, company decentralisation is currently a major driving force behind the adoption of systems operations. For example, health authorities in the United Kingdom are moving away from centralised regional systems to local systems in line with government policy to devolve responsibility down to hospital and district level. Accordingly, the operation of most regional computing centres is being transferred to systems operations vendors. Similarly, local authorities are facing government pressure to contract out their support services. This is leading to considerable interest in systems operations in this sector. In this case, systems operations is also seen as a means of protecting staff employed by the local authority, the majority of computer staff being transferred to the systems operations vendor.

In the private sector, many organisations are decentralising as far as possible in an effort to make each subsidiary more accountable for its core business and this is a factor leading to the adoption of systems operations.

This particularly applies to some of the larger conglomerates with a portfolio of related businesses who have in the past provided computer services to their subsidiaries via centralised information systems departments utilising mainframes. In many cases, the mainframe services are now being transferred to a systems operations vendor while more appropriate systems are developed for each subsidiary. Many large companies are finding that centralised mainframes are both very expensive to run and are inappropriate for the more focused approach of the 1990s.

Accordingly, company decentralisation is frequently accompanied by a major realignment of information systems and a downsizing of equipment used.

However, although decentralisation and demerging of organisations are important driving forces for systems redevelopment, any major redevelopment—particularly those involving downsizing or a move to open systems—may lead the user to adopt systems operations.

In addition to major organisational change, there is also a growing realisation that while information systems may be regarded as a critical success factor and their development should remain in-house, operating computer systems is not part of the company's core business. Since the operation of mainframes is also subject to apparent economies of scale, a number of organisations have come to realise that they can save money, and a lot of day-to-day troubleshooting, if they subcontract computer operations to a systems operations vendor. This argument does not solely apply to mainframes and some users are also starting to use systems operations as a means of contracting out minicomputer operations.

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However, mainframes, with their complex operating systems, are particularly expensive for users to manage. For example, it has been estimated that Cambridgeshire County Council will save $1.5 million, over the five year period of its systems operations contact, from computer operations alone.

As well as assisting in cost control, outsourcing of computer operations removes all the day-to-day management problems, such as operators being off work and users complaining that their reports have not been delivered on time.

Exhibit III-2 lists the principal reasons given by users for adopting systems operations.

EXHIBIT III-2

Western European Systems Operations Principal Reasons for Adoption

Factor	Degree of Importance
Easier planning of IS costs	High
Making IS more manageable	Medium
Making IS relate to business needs	Medium
Need to reduce IS costs	Medium
Change in technology used	Medium
Complexity of technology	Medium

Overall, the most important factor was found to be the easier planning of information system costs. Systems operations takes away all the uncertainty of operating costs and replaces these with a fixed annual budget.

There can be considerable uncertainty in operating large computer systems caused by factors such as:

- Performance worries and the consequent need for equipment upgrades.
- New versions of the operating system.

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- The need to change operating systems, possibly imposed by the equipment vendor.
- Recruitment, training and retention of systems software specialists.
- Overtime payments.

Use of systems operations is also expected to reduce information systems expenditure. In the majority of cases, the equipment is transferred to the vendor's data centre. This typically leads to real economies of scale. As well as utilizing any spare capacity on the equipment, the systems operations vendor should be able to share overheads between a number of clients. Such overheads include:

- Management time.
- Premises costs.
- Operating systems specialists.

Another variation of this theme is for the user to lease his data centre, including the premises, to the systems operations vendor. The vendor then has the basis of an additional regional data centre from which to serve new clients.

This combination of both fixing and reducing costs is clearly very important to users.

Users are also concerned with making information systems more manageable. Systems operations assists users in this respect by delegating the management of either computer operations, or both the operation and maintenance of current systems, enabling user management to concentrate their efforts on information systems strategy and the delivery of new systems. Of course, in some cases all aspects of the work formerly undertaken by the information systems department are contracted out to a systems operations vendor. This obviously reduces management of information systems by the user to a very low level.

Where a major realignment or refocusing of the core business has occurred, then ensuring that the information systems relate to the redefined needs of the business becomes of major importance. As was mentioned earlier, such realignments are often accompanied by a fundamental change in technology or downsizing.

In the majority of cases all equipment is transferred to the vendor's existing data centre. In those cases where the equipment was not moved, both the premises and the equipment were typically leased by the user to the vendor. In this way, the user site effectively becomes an additional data centre for the systems operations vendor.

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Instances of the vendor running equipment for the user in premises retained by the user appear to be rare. This is to be expected, as it is to the advantage of both vendor and user alike if computer operations are transferred to a vendor site. The vendor benefits from economies of scale resulting from the use of any spare capacity and from the sharing of its overhead and expertise. Some of the benefits of these can then be passed on to the user in the form of reduced costs, and the physical separation from the equipment ensures a considerable reduction in user involvement in day-to-day operational problems.

B

Types of Systems Operations Service

1. Market Segmentation

INPUT's user research indicates that systems operations can be segmented into three distinct offerings:

- Operations Management.
- Transition Management.
- Complex Systems Operations.

As shown in Exhibit III-3, operations management is the largest segment in terms of number of users. As the name operations management implies, it consists of delegating all aspects of computer operations, thereby enabling user information systems management personnel to concentrate on systems development. Typically, all equipment is transferred to the systems operations vendor's data centre. Responsibility for the development and maintenance of all applications software remains with the user organisation. Operations management is most commonly applied to mainframes, but there are also cases where it has been applied to minicomputers. The typical length of an operations management contract is five years.

On the other hand, transition management is usually a comparatively short-term project of around two years' duration. The purpose of transition management is that the systems operations vendor takes on all responsibility for the operation and maintenance of existing information systems while new systems are developed. Once these new systems are developed, then the "old" systems are phased out and the transition management contract comes to an end.

Transition management is in many ways similar to short-term operations management, since although applications software maintenance is typically included in the contract, this will usually be kept to a minimum. Much traditional application maintenance activity is really a form of new development required to maintain the software in line with the evolution of the business. Such work will obviously be kept to a minimum if new systems are in the process of development.

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EXHIBIT III-3

Western European Systems Operations Types of Service

Market Segment	Proportion of Users
Operations management	50%
Transition management	30%
Complete systems operations	20%

Sample of 12 European systems operations users.
INPUT estimate.

There are two ways in which new systems can be developed alongside a transition management contract. One way, which is perhaps best regarded as true transition management, is where the user's information systems department is responsible for, and carries out, all new systems procurement and development.

In the other version of transition management, which can be regarded as a half-way house to complete systems operations, all systems development is contracted out. However, each development is the subject of a separate tendering process with no guarantee that the systems operations vendor will receive any development business. A small group of user information systems staff are typically retained to manage the tendering process and monitor the development work.

In each of these cases, it is the general intention that users will be able to run the new systems once these are installed, without the assistance of a systems operations vendor.

Complete systems operations is the least common form of systems operations. Here the systems operations vendor takes responsibility for both operations and applications maintenance and development for both existing and new applications. Any involvement by user information systems personnel is reduced to IS strategic planning and management of the systems operations vendor. This type of systems operations only tends to happen where the user organisation is facing immense external pressures, possibly leading to a collapse in user management's confidence.

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Since the reasons for adopting systems operations, and hence the vendor selection criteria, vary in line with the segmentation of the systems operations market, the reasons for user's adoption of systems operations are now shown in more detail for each of the following:

- Operations Management.
- Transition Management.
- Complete Systems Operations.

2. Operations Management

Exhibit III-4 shows the principal reasons given by users for adopting operations management.

EXHIBIT III-4

Western European Systems Operations Principal Reasons for Adopting Operations Management

Factor	Degree of Importance
Easier planning of IS costs	High
Complexity of technology	High
Difficulty in recruiting suitable staff	Medium
Change in technology used	Medium

It is extremely difficult for users to control the costs of operating large machines such as mainframes, since many factors are outside the scope of their control. These factors include:

- Evolution/replacement of the operating system.
- Cost of upgrades.
- System software licensing costs.
- Maintenance costs.
- Machine downtime.
- Staff retraining costs.

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Indeed, many of the costs associated with these factors may be changed at comparatively short notice to suit the marketing policies of the equipment vendors. So it can be attractive to users to be able to delegate all these problems to a systems operations vendor.

The complexity of mainframes is another very important factor in the adoption of operations management. Effective management of a mainframe requires access to operating system expertise, performance monitoring and machine tuning expertise, and probably communications expertise. This not only makes day-to-day management a complicated task, but also can be very expensive. This situation is further exacerbated, from the users' viewpoint, by the rapid evolution of the technology.

The appearance of "difficulty in recruiting suitable staff" in Exhibit III-4 reflects the presence of public sector organisations amongst the organisations interviewed. It is not generally perceived as a significant issue in the private sector.

3. Transition Management

Although in terms of service offering, transition management has much in common with operations management, the motivations for adopting transition management are quite different, as shown in Exhibit III-5.

In these cases, the user's business has typically undergone a fundamental change in direction, or refocusing, with the consequent need to realign its information systems as rapidly as possible. The factors listed in Exhibit III-5 show a strong need to focus resources on the new business requirements.

EXHIBIT III-5

Western European Systems Operations Principal Reasons for Adopting Transition Management

Factor	Degree of Importance
Making IS relate to business needs	High
Making IS more manageable	High
Freeing of key personnel from maintenance activities	High

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Transition management frequently involves a downsizing of computer systems and a move to more decentralised information systems providing more focused support to individual business units.

4. Complete Systems Operations

The principal reasons for adopting complete systems operations are listed in Exhibit III-6. The need to realign systems with business needs and to make information systems more manageable are motivations common to both transition management and complete systems operations. However, users adopting complete systems operations also show a strong concern to control and reduce their information systems spending.

EXHIBIT III-6

Western European Systems Operations Principal Reasons for Adopting Complete Systems Operations

Factor	Degree of Importance
Making IS relate to business needs	High
Making IS more manageable	High
Easier planning of IS costs	High
Need to reduce IS costs	High

Complete systems operations only seems to be adopted by organisations in real crisis, this crisis typically extending beyond the information systems department.

In the case of transition management, although the organisation may be refocusing, the information systems management has usually retained sufficient credibility to continue to influence the direction of information systems. This may take the form of the information systems department retaining their development staff and developing the new systems required. Alternatively, in extreme cases, they may simply assist in the development of the information systems strategy and the procurement of new systems.

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However, complete systems operations only seems to be adopted where there is both a severe crisis within the organisation and the information systems department has lost all credibility over its ability to deliver the most appropriate information systems for the organisation.

This may arise as a result of a loss of confidence by senior company management in the face of external pressure or a worsening competitive position. Therefore, complete systems operations will often arise as a result of a deeper malaise than problems within the information systems department.

5. Public Sector Issues

The principal driving forces encouraging the public sector to adopt systems operations are the moves towards decentralisation and local control, and government pressure for adoption of competitive tendering.

However, as shown in Exhibit III-7, the public sector also has difficulties in recruiting and retaining computer staff. Such difficulties are not commonly found in the private sector. Users report that salary bands in the public sector make it difficult to attract staff of the appropriate calibre, while the inadequacy of training budgets to keep staff up-to-date can present a problem for staff retention.

EXHIBIT III-7

Western European Systems Operations Reasons for Adoption: Differences between Public and Private Sectors

Factor	Degree of Importance	
	Public Sector	Private Sector
Difficulty in recruiting suitable staff	Low	High
Difficulty of retaining IS staff	Medium	Low

Coupled with the above pressures and the squeeze on capital expenditure in the public sector, the public sector is becoming particularly susceptible to use of systems operations. According to SOCITM, the local government IS managers group in the United Kingdom, many local authorities are now considering privatisation of their IS departments, and systems operations may prove an attractive route for achieving this.

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C

Purchasing Criteria

1. Overall Criteria

Exhibit III-8 shows the major reasons for their choice of vendor given by users when unprompted.

EXHIBIT III-8

Western European Systems Operations Major Reasons for Selection of Vendors

- Competitive price
- Existing relationship
- Established vendor

The combination of price and security is clearly very importance to users in choosing a systems operations vendor.

Price should be viewed as "the price given an agreed Service Level Agreement". Service Level Agreements (SLAs) are clearly very important and were mentioned by several users as the means by which they evaluated vendors' proposals. Service Level Agreements need to specify the vendor's responsibilities in considerable detail and to include:

- Service availability and up-time guarantees,
- Response times,
- Storage and processing requirements,
- Details of report production and delivery,
- Levels of security,
- Penalties for failure to meet SLA targets,
- Bases for price increases.

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As is common in the software and services market, systems operations users showed a strong dislike of pioneering. This manifested itself in the desire of many users to appoint a vendor who was already well-established in the system operations market, and to avoid vendors new to the market. Users also favoured vendors with whom they had done business in the past and were found to include on their invitations to tender vendors who had supplied them with professional services in the past.

Indeed one user appointed its systems operations supplier without undertaking any significant competitive comparisons because it had used that vendor's bureau service in the past and felt comfortable with the vendor's personnel.

Besides those shown in Exhibit III-8, other selection criteria mentioned by users included:

- The wide skills base of the vendor,
- The vendor's approach to people issues (specifically, the employment of the user's computer personnel),
- The vendor's attitude to quality,
- The vendor's willingness to enter into a partnership.

A number of other possible vendor selection criteria were discussed in some depth with systems operations users, including the vendor's:

- Relevant industry knowledge.
- Company size.
- Flexibility in negotiation.
- Provision of hardware maintenance.
- Provision of software maintenance.
- Technological capability.
- Strategic planning capability.
- Business consultancy skills.
- Provision of disaster recovery.
- Knowledge of hardware.
- Development capability
- Ability to change system.
- Cost.
- Independence from equipment vendors.
- Physical location.

Exhibit III-9 lists those of the above attributes rated as most important by users.

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EXHIBIT III-9

Western European Systems Operations Major Factors in Choice of Vendor

Factor	Rating
Cost	Very High
Technological capability	High
Knowledge of hardware	High
Company size	High
Flexibility of negotiation	High

They mirror the criteria shown in Exhibit III-8, in that cost is rated most highly, and vendor size—often a surrogate for experience and security—is rated as being very important.

Flexibility in negotiation is important in that each user will have its own Service Level Agreement requirements and require particular service quality guarantees. Negotiating a systems operations contract is a lengthy process requiring considerable attention to detail.

The following sections of the report consider the vendor selection criteria in more detail for each of the systems operations market segments identified earlier.

2. Operations Management and Transition Management

Exhibits III-10 and III-11 show the vendor selection criteria for operations management and transition management respectively.

It can be seen that, while the primary motivations for adopting systems operations were quite different for these two market segments, their vendor selection criteria are quite similar.

The main differences in vendor selection criteria between these two segments are as follows. Firstly, there is slightly less emphasis on cost in the case of transition management. This is to be expected since one of the main motivations for adopting operations management is the desire to fix/reduce the medium-term cost of computer operations. On the other hand, transition management is typically short-term with the emphasis on

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EXHIBIT III-10

Western European Systems Operations Major Factors in Vendor Choice Operations Management

Factor	Rating
Cost	Very High
Knowledge of hardware	High
Flexibility in negotiation	High
Vendor size	High
Technological capability	High
Physical location	Medium-High

EXHIBIT III-11

Western European Systems Operations Major Factors in Vendor Choice Transition Management

Factor	Rating
Cost	High
Physical location	High
Technological capability	High
Flexibility in negotiation	High
Knowledge of hardware	High

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realigning the company's information systems with its business needs as quickly as possible. Secondly, slightly more importance is attached to the physical location of the equipment in transition management. This is probably because finding space for new equipment is often as important as freeing staff to concentrate on new development in transition management projects. Thirdly, vendor size is regarded as more important in operations management, reflecting the longer term, more strategic nature of this segment compared to transition management.

Perhaps surprisingly, software maintenance capability was not indicated to be an important vendor selection criteria in choosing a vendor for transition management. This supports the view that applications maintenance is seen as a comparatively minor component of the transition management service, the bulk of the service being the supply of the computing service itself.

3. Complete Systems Operations

Exhibit III-12 shows the vendor selection criteria for complete systems operations. Complete systems operations involves both the operation and maintenance of the user's existing information systems together with the redevelopment of any new systems required. In these cases, the user information systems department no longer undertakes the specification and development of information systems within the user organisation.

EXHIBIT III-12

Western European Systems Operations
Major Factors in Vendor Choice
Complete Systems Operations

Factor	Rating
Industry knowledge	High
Strategic planning capability	High
Business consultancy skills	High
Development capability	High
Independence from equipment vendors	High

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In this segment of the systems operations market, the vendor selection criteria are radically different from those seen previously, reflecting the fact that the abilities to drive the organisation's information systems strategy and to develop new systems appropriate to the organisation's business needs are now of paramount importance. Accordingly, the ability of the vendor to understand the clients' requirements is of key importance, as are the skills to translate this knowledge into effective information systems.

For the first time, independence from equipment vendors becomes an important criterion for users in this segment of the market. Obviously the danger of vested interests becomes more of a threat if the vendor is in a position to control the organisation's overall information systems strategy.

D

Perceived Suitability of Vendors

1. Overall Suitability by Vendor Type

Exhibits III-13 indicates users' perceptions of the overall suitability of each of the main vendor types to offer systems operations, while Exhibit III-14 breaks down their perceived suitability for each of the market segments identified earlier.

EXHIBIT III-13

Western European Systems Operations Overall Suitability of Vendor Types

Vendor Category	Perceived Suitability
Major professional services vendor	High
Management consultancy	Medium-High
Major equipment vendor	Low-Medium

However, is should be pointed out that the overwhelming majority of users interviewed currently contracted their systems operations services from a major professional services vendor, and, while this may well reflect the current reality of the market, the results of this survey should be interpreted in this context.

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2. Perceptions of Management Consultancies

As shown in Exhibit III-14, the management consultancies such as Andersen Consulting were perceived to be highly appropriate vendors for complete systems operations, but less suitable for operations management and transition management. Overall the management consultancies were perceived to be very competent and professional with particular strengths in consultancy, strategy and system development.

EXHIBIT III-14

Western European Systems Operations Perceived Suitability by Market Segment

Vendor Type \ Market Segment	Operations Management	Transition Management	Complete Systems Operations
Major Systems House	High	Very High	Medium
Management Consultancy	Medium	Low-Medium	High
Major Equipment Vendor	Low-Medium	Medium-High	Low

However, these same strengths which are virtues in the complete systems operations segment, where the purchasing decision is typically taken by top management, can be a handicap in the operations management and transition management segments where the purchasing decision is more strongly influenced by information systems managers.

Some of the doubts expressed by users regarding their suitability as systems operations vendors are shown in Exhibit III-15.

Some users expressed a fear that the systems operations services of the management consultants would be comparatively expensive. Obviously this is a major disadvantage in targeting the operations management and transition management segments, where cost is a key purchasing criterion.

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EXHIBIT III-15

Western European Systems Operations Doubts on Suitability of Management Consultancies

- Expensive
- Difficulties in managing relationship
- Long-term reliability

Information systems managers also expressed a fear of the strategic capabilities of these vendors which might make any relationship with them for the provision of operations management or transition management services difficult to control. Specifically there are fears within information systems management—who retain control of the purchasing and management of these two types of service—that management consultants would bypass them and endeavour to sell complementary services such as information technology strategies and systems development direct to the user's top management. Obviously such fears of loss of control will lead to the management consultancies being excluded from any invitations to tender for these types of service.

Accordingly, the management consultancies were felt to be most appropriate for complete systems operations and much less appropriate as providers of operations management and transition management.

3. Perceptions of Major Equipment Vendors

Overall the major equipment vendors were felt to be the least appropriate of the three vendor categories as providers of systems operations services.

However, the major equipment vendors were perceived as having capable customer service organisations providing the necessary responsiveness and service levels in response to hardware problems, and they received a higher rating than the management consultancies for transition management. This can be explained in terms of users' familiarity in changing computer equipment assisted by staff from the equipment vendor.

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The perceived weaknesses of major equipment vendors in the systems operations market are shown in Exhibit III-16. Firstly, equipment vendors were perceived to be unsuitable for complete systems operations since the possibility of their having vested interests in the equipment and software used concerned users that they may be locking themselves in unnecessarily. A greater degree of independence is a requirement where the vendor is assisting in the development of overall information systems strategies.

EXHIBIT III-16

Western European Systems Operations Doubts on Suitability of Major Equipment Vendors

- Not their core business
- Vested interests
- Ability to enter market successfully

Users are also concerned that systems operations is not a core business of the major equipment vendors and that these vendors might find it difficult to enter the market. In the operations management segment, users need to feel secure in their choice of vendor and that the vendor will be successful in marketing its systems operations services.

Accordingly, the most appropriate segment for major equipment vendors to target initially is the transition management segment.

E

User Satisfaction

1. Overall Level of Satisfaction

As shown in Exhibit III-17, users are on the whole very satisfied with the levels of service received from their systems operations vendors.

Only two users interviewed expressed significant overall dissatisfaction with the service levels received. In one of these cases, a fundamental miscalculation in sizing the workload at the beginning of the project seems to have taken place, and this has led to a number of problems ever since. In particular, the user is finding that the service levels being provided for the agreed cost are much less flexible than he would like. It is likely that many of these problems could have been avoided by both parties if more time had been spent on negotiation and agreeing detailed

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EXHIBIT III-17

Western European Systems Operations Level of Satisfaction with Service Received

Level Of Satisfaction		Number of Users
Not at all satisfied	1	0
	2	2
	3	0
	4	6
Very satisfied	5	1

service level agreements in advance. In this particular case, it appears the user was under pressure to transfer the information systems in a short space of time, and choosing the vendor on the basis of limited prior familiarity with their data centre, did not take the necessary time to evaluate the requirements in sufficient detail. The resulting problems are still being felt more than two years later.

2. Causes of Satisfaction

As already indicated, the majority of users are very satisfied with the performance of their systems operations vendor. In most cases, users regarded the transition to systems operations to be "seamless and well project-managed" and believed that the levels of service had improved as a result of the takeover of computer operations by a systems operations vendor. This is particularly the case where the user had difficulty in recruiting specialised staff. One public sector user commented that all the problems arising from the organisation's wide-area network had disappeared on transfer of the service to a systems operations vendor.

Overall there appears to be a clear improvement in the management of computer operations once these are subcontracted to a systems operations vendor, and provided detailed service level agreements are negotiated in advance.

However, systems operations can take some time to settle down in some instances, with users only expecting significant service level improvements by the second year of the contract.

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EXHIBIT III-18

Western European Systems Operations Causes of Satisfaction

- Improvement in service levels
- Breadth of vendor expertise
- Invisibility of service

3. Causes of Dissatisfaction

Exhibit III-19 lists the most common causes of user dissatisfaction.

EXHIBIT III-19

Western European Systems Operations Major Reasons for Dissatisfaction

- Operational problems
- Personnel adjustment
- Communication
- Culture shock
- Lack of proactive assistance

Paradoxically, the computer operations area was also the area most likely to lead to user dissatisfaction. The typical problems reported are those which commonly arise if operating procedures are not documented in great detail and include:

- Difficulties in communication with operators at remote sites,
- A lack of perceived consistency in the operating procedures,

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- The wrong reports being produced,
- Delays in transporting reports from the vendor site,
- The channelling of faults.

In themselves these problems were generally regarded as inconvenient rather than catastrophic, but when compounded by poor continuity of vendor personnel or machine overload, they pose a serious threat to the renewal of the systems operations contract.

The adjustment of staff to the new working relationships is not perceived as a major problem, but obviously it can take a period of time for staff to adjust. In particular, one user noted that it took his development staff some time to come to terms with the fact that the operations personnel—who they knew well—were no longer part of the same organisation. This illustrates one of the adjustments that needs to be made in adopting systems operations: the relationships between former colleagues can become commercial ones, where the informal granting of favours is no longer appropriate.

4. Switching Criteria

The profile of the lengths of systems operations contracts is shown in Exhibit III-20.

EXHIBIT III-20

Western European Systems Operations Length of Contracts

Contract Length	Number of Users
Five years	5
Two years	2
Less than two years	1

While there are no hard and fast rules, operations management and complete systems operations contracts tend to last for five years, while transition management contracts are much shorter, typically lasting around two years. Also, operations management and complete systems

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operations contracts will tend to be renewable at the end of the contract period. Although transition management contracts will often have roll-on clauses to protect against late delivery of the new systems, users intend to terminate the contract at the end of the period specified.

Exhibit III-21 shows users' impressions of the likely events at the end of the contract period.

EXHIBIT III-21

Western European Systems Operations User Switching Criteria at End of Contract

- "We will review at the end of the contract, when we know more about systems operations. We will invite 2-3 vendors to tender and judge on the basis of their ability to meet our service criteria."
- "We will review and adopt the most cost-effective solution."
- "It depends on their business performance and our degree of comfort with the partnership."
- "There is an option to roll-on on a six-month basis."
- "This interim arrangement is now coming to an end."
- "In five years' time, a lot more local systems will be in place."

Since operations management is from the user perspective primarily a means of stabilising and reducing costs, it is probable that many users will go out to tender at the end of the contract period, if only to keep their current supplier on its toes. Having then used systems operations for a significant period of time, users feel they will be more qualified to specify detailed service criteria and adopt the most cost-effective solution to meet this criteria. However, provided the existing supplier has supplied a high level of service—which is typically perceived to be the case—then the nature of the relationships built-up between user and vendor personnel should ensure that the existing supplier starts the negotiations at a distinct advantage.

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In the case of complete systems operations, it will be more difficult for users to compare vendors, and much will depend on the degree of comfort felt with the services and personnel of the current vendor.

At the present time, most of the users of systems operations interviewed were less than half way to completion of their contracts, and so it is difficult to be sure how their views will evolve as the contracts near completion.

5. Inhibitors to Systems Operations

Exhibit III-22 lists some of the factors which will tend to inhibit the use of systems operations in the longer term.

EXHIBIT III-22

Western European Systems Operations Inhibitors to Systems Operations

- Decentralisation
- Downsizing
- Transition management

Complete systems operations, while the smallest market segment at present in terms of numbers of users, is the area where users are most likely to continue to use systems operations indefinitely since no in-house development expertise will typically be retained.

Transition management, on the other hand, is usually an interim project often concerned with the replacement of centralised information systems running on mainframes by decentralised minicomputer-based applications. The information systems department continues to direct systems development activity and the end users are frequently expected to operate the equipment themselves. Accordingly, once the transition management project is complete, the opportunity for systems operations vendors disappears.

Operations management is essentially concerned with subcontracting the provision of computer services. It is most commonly applied to mainframe services where the benefits of sharing machines and overheads between differing organisations are greatest. Where mainframes remain

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part of the information systems strategy of the user (even if only as large file servers), then operations management is likely to thrive. However, systems operations is less applicable to minicomputer and personal computer-based services, and so any large scale reduction in the mainframe population will reduce opportunities for systems operations vendors in the long run. In the short-term, this will not be an important inhibitor, because of the low penetration levels of systems operations at the present time.

Of course, the attitudes of user information systems management can also inhibit the adoption of systems operations. In the absence of organisational crises, information systems managers will not adopt systems operations where they feel that this introduces a competitive threat to their own control and position.

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IV

Implications for Vendors

IV

Implications for Vendors

A

Introduction

Systems operations is still not readily accepted by the majority of the user base, and so the number of prospects available to vendors is limited. Opportunities for systems operations are most likely to arise where the user organisation is facing a major external threat and finds itself under either severe cost pressure or the need to refocus its business. Any refocusing of the business is likely to necessitate a realignment of computer systems, in many cases accompanied by a downsizing of the equipment used. Company demergers and decentralisation are currently proving to be major catalysts to the adoption of systems operations.

The system operations market can be divided into three distinct market segments:

- Operations management.
- Transition management.
- Complete systems operations.

The operations management segment consists of situations where the user's computer operations activities are outsourced. Most operations management contracts involve the operation of mainframe-based systems, though some instances of outsourcing of minicomputer-based systems do exist. Contracts are typically negotiated for five years at a time. The information systems department remains a major buying influence for system operations, and retains control of applications maintenance and development.

Transition management involves the management of the user's existing systems, while new systems are developed. Both the operation and maintenance of the existing systems are typically subcontracted. Contracts tend to be shorter than those for operations management and are typically around two years in length. As in the case of operations management, the equipment tends to be transferred to the vendor's premises.

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Complete systems operations involves the operation and maintenance of the user's existing information systems together with the redevelopment of any new systems required. In these cases, the user information systems department no longer undertakes the specification and development of information systems within the organisation.

Each of these market segments has its own unique combination of motivations and vendor selection criteria. Since each vendor also has its own unique pattern of strengths and weaknesses, clearly each vendor should target the segment or segments to which it is most suited.

B

Operations Management

Exhibit IV-1 shows the vendor selection criteria for the operations management segment, together with the perceived ability of the main types of potential vendor to meet these criteria.

EXHIBIT IV-1

Western European Systems Operations
Operations Management
Positioning of Vendors

Vendor Type / Purchasing Criterion	Professional Services Vendors	Management Consultancies	Major Equipment Vendors
Cost	High	Low	Medium-High
Technological Capability	High	High	High
Vendor Stability	High	High	Low

The best match is achieved by the professional services vendors, particularly those who already target this segment. The perception of vendor stability depends on a combination of vendor size, the user's familiarity with the vendor through existing services, and the vendor's presence in the system operations market. Users are already starting to become concerned that their operations management provider should not be a new entrant to system operations. This is probably the prime reason for the comparatively poor perceived positioning of the major equipment vendors.

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The positioning of the management consultancies in the operations management segment is adversely affected by their perceived high cost. However, they are additionally believed to pose more of a threat than the professional service vendors to the future of the information systems department.

Purchasing of operations management will continue to be strongly influenced by the information systems department.

C

Transition Management

The professional services vendors are also well positioned for the transition management segment, whereas the management consultancies are again perceived as being expensive.

Transition management is the most appropriate segment for the major equipment vendors to target initially. Transition management projects tend to be of comparatively short-term duration, and so current market presence is a less important factor than in the operations management segment. This makes the segment a good one for new entrants to systems operations to target initially.

Also, information systems staff, who are again a major influence in the buying process for transition management services, have some familiarity in changing equipment in conjunction with their equipment vendor's personnel.

EXHIBIT IV-2

Western European Systems Operations Transition Management Positioning of Vendors

Purchasing Criterion \ Vendor Type	Professional Services Vendors	Management Consultancies	Major Equipment Vendors
Cost	High	Low	Medium-High
Technological Capability	High	High	High
Physical Location	High	High	High

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However, although equipment vendors in theory have strong technological capability in areas such as systems software and knowledge of their own operating systems, users are aware that this knowledge can sometimes be confined to a small number of experts who are not always immediately accessible. Accordingly, one user suggested that the most appropriate manner for the major equipment vendors to enter the system operations market would be via acquisition of a medium-sized systems operations vendor. Once the major equipment vendors became established in the transition management segment, this would facilitate their subsequent entry into operations management.

D

Complete System Operations

Complete systems operations is the segment where the management consultancies are perceived to be best positioned, with their superior business consultancy skills.

While the equipment manufacturers could probably develop these skills as well, their perceived lack of depth of development capability together with users' fears of being "locked in" leaves them poorly positioned in this segment of the market.

The professional services vendors need to improve the perception of their high-level consultancy skills if they are to succeed in complete systems operations.

EXHIBIT IV-3

Western European Systems Operations
Complete Systems Operations
Positioning of Vendors

Purchasing Criterion \ Vendor Type	Professional Services Vendors	Management Consultancies	Major Equipment Vendors
Business Consultancy Skills	Medium	High	High
Development Capability	High	High	Medium
Independence from Equipment Vendors	High	High	Low

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Appendixes

A

Definition of Terms

A

Overall Definitions and Analytical Framework

Information Services - Computer/telecommunications-related products and services that are oriented toward the development or use of information systems. Information services typically involve one or more of the following:

- Processing of specific applications using vendor-provided systems (called Processing Services)
- A combination of hardware, packaged software and associated support services which will meet a specific application processing need (called Turnkey Systems)
- Packaged software (called Software Products)
- People services that support users in developing and operating their own information systems (called Professional Services)
- Bundled combinations of products and services where the vendor assumes responsibility for the development of a custom solution to an information system problem (called Systems Integration)
- Services that provide operation and management of all or a significant part of a user's information systems functions under a long-term contract (called Systems Operations)
- Services associated with the delivery of information in electronic form—typically network-oriented services such as value-added networks, electronic mail and document interchange, on-line data bases, on-line news and data feeds, videotex, etc. (called Network Services)

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In general, the market for information services does not involve providing equipment to users. The exception is where the equipment is bundled as part of an overall service offering such as a turnkey system, a systems operations contract, or a systems integration project.

The information services market also excludes pure data transport services (i.e., data or voice communications circuits). However, where information transport is associated with a network-based service (e.g., EDI or VAN services), or cannot be feasibly separated from other bundled services (e.g., some systems operations contracts), the transport costs are included as part of the services market.

The analytical framework of the **Information Services Industry** consists of the following interacting factors: overall and industry-specific business environment (trends, events and issues); technology environment; user information system requirements; size and structure of information services markets; vendors and their products, services and revenues; distribution channels, and competitive issues.

All **Information Services Market** forecasts are estimates of **User Expenditures** for information services. When questions arise about the proper place to count these expenditures, INPUT addresses them from the user's viewpoint: expenditures are categorized according to what users perceive they are buying.

By focusing on user expenditures, INPUT avoids two problems which are related to the distribution channels for various categories of services:

- Double counting, which can occur by estimating total vendor revenues when there is significant reselling within the industry (e.g., software sales to turnkey vendors for repackaging and resale to end users)

- Missed counting, which can occur when sales to end users go through indirect channels such as mail order retailers

Market Sectors or markets, are groupings or categories of the users who purchase information services. There are three types of user markets:

- *Vertical Industry* markets, such as Banking, Transportation, Utilities, etc.

- *Functional Application* markets, such as Human Resources, Accounting, etc. These are also called "Cross-Industry" markets.

- *Generic* markets, which are neither industry- nor application-specific, such as the market for systems software.

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Captive Information Services User Expenditures are expenditures for products and services provided by a vendor that is part of the same parent corporation as the user. These expenditures are not included in INPUT forecasts.

Non-captive Information Services User Expenditures are expenditures that go to vendors which have a different parent corporation than the user. It is these expenditures which constitute the information services market.

Delivery Modes are defined as specific products and services that satisfy a given user need. While *Market Sectors* specify *who* the buyer is, *Delivery Modes* specify *what* the user is buying.

Of the eight delivery modes defined by INPUT, five are considered primary products or services:

- Processing Services
- Network Services
- Professional Services
- Applications Software Products
- Systems Software Products

The remaining three delivery modes represent combinations of these products and services, bundled together with equipment, management and/or other services:

- Turnkey Systems
- Systems Operations
- Systems Integration

Section B describes the delivery modes and their structure in more detail.

Outsourcing is defined as the contracting of information systems (IS) functions to outside vendors. Outsourcing should be viewed as the opposite of *insourcing*: anything that IS management has considered feasible to do internally (e.g., data centre operations, applications development and maintenance, network management, training, etc.) is a potential candidate for outsourcing.

IS has always bought systems software, as it is unfeasible for companies to develop it internally. However, all other delivery modes represent functions or products that IS management could choose to perform or develop in-house. Viewed this way, outsourcing is the result of a make-or-buy decision, and the outsourcing market covers any product or service where the vendor must compete against the client firm's own internal resources.

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B

Industry Structure and Delivery Modes

1. Service Categories

Several of the delivery modes can be grouped into higher-level **Service Categories**, based on the kind of problem the user needs to solve. These categories are:

- **Business Application Solutions (BAS)** - prepackaged or standard solutions to common business applications. These applications can be either industry-specific (e.g., mortgage loan processing for a bank), cross-industry (e.g., payroll processing), or generic (e.g., utility time-sharing). In general, BAS services involve minimal customisation by the vendor, and allow the user to handle a specific business application without having to develop or acquire a custom system or system resources. The following delivery modes are included under BAS:

  - Processing Services
  - Applications Software Products
  - Turnkey Systems

- **Systems Management Services (SMS)** - services which assist users in developing systems or operating/managing the information systems function. Two key elements of SMS are the customisation of the service to each individual user and/or project, and the potential for the vendor to assume significant responsibility for management of at least a portion of the user's information systems function. The following delivery modes are included under SMS:

  - Systems Operations
  - Systems Integration

Each of the remaining three delivery modes represents a separate service category:

- Professional Services
- Network Services
- System Software Products

Note: These service categories are a new concept introduced in the 1990 Research Programme. They are purely an aggregation of lower level delivery mode data. They do not change the underlying delivery modes or industry structure.

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2. Systems Operations

Systems operations involves the operation and management of all or a significant part of the user's information systems functions under a long-term contract. These services can be provided in either of two distinct submodes:

- *Professional Services:* The vendor provides personnel to operate client-supplied equipment. Prior to 1990, this was a submode of the Professional Services delivery mode.

- *Processing Services:* The vendor provides personnel, equipment and (optionally) facilities. Prior to 1990, this was a submode of the Processing Services delivery mode.

Systems operations vendors now provide a wide variety of services in support of existing information systems. The vendor can plan, control, provide, operate, maintain and manage any or all components of the user's information systems (equipment, networks, systems and/or application software), either at the client's site or the vendor's site. Systems operations can also be referred to as "resource management" or "facilities management."

There are two general levels of systems operations:

- *Platform/network operations* - where the vendor operates the computer system and/or network without taking responsibility for the applications

- *Application operations* - where the vendor takes responsibility for the complete system, including equipment, associated telecommunications networks, and applications software

Note: Systems Operations is a new delivery mode introduced in the 1990 Research Programme. It was created by taking the Systems Operations submode out of both Processing Services and Professional Services. No other change has been made to the delivery mode definitions, and the total forecast expenditures for these three delivery modes are identical to the total forecast expenditures of the two original modes before the breakout of Systems Operations.

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3. Systems Integration (SI)

Systems Integration is a business offering that provides a complete solution to an information system, networking or automation requirement through the custom selection and implementation of a variety of information system products and services. A systems integrator is responsible for the overall management of a systems integration contract and is the single point of contact and responsibility to the buyer for the delivery of the specified system function, on schedule and at the contracted price.

To be included in the information services market, systems integration projects must involve some application processing component. In addition, the majority of cost must be associated with information systems products and/or services.

The systems integrator will perform, or manage others who perform, most or all of the following functions:

- Program management, including subcontractor management
- Needs analysis
- Specification development
- Conceptual and detailed systems design and architecture
- System component selection, modification, integration and customisation
- Custom software design and development
- Custom hardware design and development
- Systems implementation, including testing, conversion and post-implementation evaluation and tuning
- Life cycle support, including
  - System documentation and user training
  - Systems operations during development
  - Systems maintenance
- Financing

4. Professional Services

This category includes consulting, education and training, and software development.

- *Consulting:* Services include management consulting (related to information systems), information systems consulting, feasibility analysis and cost-effectiveness studies, and project management assistance. Services may be related to any aspect of information systems, including equipment, software, networks and systems operations.

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- *Education and Training:* Products and services related to information systems and services for the professional and end user, including computer-aided instruction, computer-based education, and vendor instruction of user personnel in operations, design, programming, and documentation.

- *Software Development:* Services include user requirements definition, systems design, contract programming, documentation and implementation of software performed on a custom basis. Conversion and maintenance services are also included.

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B

Related INPUT Reports

Systems Operations Market Analysis & Forecast—Western Europe, 1990-1995

Systems Operations Vendor Issues—Western Europe, 1990-1995

Systems Integration Market Forecast—Western Europe, 1990-1995

Systems Integration User Perspectives—Western Europe, 1990-1995

Systems Integration Vendor Issues—Western Europe, 1990-1995

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User Questionnaire—Systems Operations

1. What services are provided by your systems operations provider?

	Yes	No
Operating Existing Systems	____	____
Maintaining Existing Systems	____	____
Enhancing Existing Systems	____	____
Developing New Systems	____	____
Maintaining New Systems	____	____
Operating New Systems	____	____
Upgrading Equipment	____	____
Maintaining Equipment	____	____
Liaison with Third-Party Suppliers	____	____
Supporting End Users	____	____
IS Strategy Development	____	____
Employment of Existing IS Staff	____	____
Other	____	____

Where is the equipment sited?

____ User Premises
____ Vendor Premises

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2. Why did you decide to move to systems operations?

_____

_____

How important were each of the following factors in reaching this decision?

	Not at All				Very
Difficulty of Retaining In-House Staff	1	2	3	4	5
Need to Reduce IS Costs	1	2	3	4	5
Size of Development Backlog	1	2	3	4	5
Cost of Maintaining Existing Systems	1	2	3	4	5
Freeing of Key Personnel From Maintenance Activities	1	2	3	4	5
Need to Meet Project Deadlines	1	2	3	4	5
Easier Planning of IS Costs	1	2	3	4	5
Uncertainty over IS Strategy	1	2	3	4	5
Change in Technology Used	1	2	3	4	5
Difficulty in Recruiting Suitable Staff	1	2	3	4	5
Making IS More Manageable	1	2	3	4	5
Making IS Relate to Business Needs	1	2	3	4	5
Complexity of Technology	1	2	3	4	5
Other _____	1	2	3	4	5

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3. Who provides your systems operations services?

_____

_____

Why did you choose them?

_____

_____

Would you please rate the suitability of each of the following types of vendor as systems operations providers?

	Not at All				Very
Major Equipment Vendor	1	2	3	4	5
Middle-Ranking Equipment Vendor	1	2	3	4	5
Major Professional Services Vendor	1	2	3	4	5
Software Products Vendor	1	2	3	4	5
Management Consultancy	1	2	3	4	5

How important are each of the following factors in choosing a systems operations company?

	Not at All				Very
Knowledge of Your Industry	1	2	3	4	5
Company Size	1	2	3	4	5
Flexibility in Negotiation	1	2	3	4	5
Provision of Hardware Maintenance	1	2	3	4	5
Provision of Software Maintenance	1	2	3	4	5

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	Not at All				Very
Technological Capability	1	2	3	4	5
Strategic Planning Capability	1	2	3	4	5
Business Consultancy Skills	1	2	3	4	5
Provision of Disaster Recovery	1	2	3	4	5
Knowledge of Hardware	1	2	3	4	5
Development Capability	1	2	3	4	5
Ability to Change System	1	2	3	4	5
Cost	1	2	3	4	5
Independence from Equipment Vendors	1	2	3	4	5
Physical Location	1	2	3	4	5
Other (please specify)	1	2	3	4	5

Who do you regard to be the leading systems operations vendors?

_____

_____

4. For how long have you used systems operations?

_____

How long does this contract have to run?

_____

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How satisfied are you with the service so far?

Not at All				Very
1	2	3	4	5

Which aspects of the service are you most satisfied with?

_____

Which aspects of the service are you least satisfied with?

_____

Will you go out to tender at the end of the contract period?

___Yes ___No

How likely are you to renew the contract with the same vendor?

Not at All				Very
1	2	3	4	5

What factors would be important in persuading you to switch to using another vendor?

_____

_____

_____

Thank you very much for your assistance.

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